



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,622	02/18/2004	Jun Kitakado	038440-0105	9103
22428	7590	01/31/2008	EXAMINER	
FOLEY AND LARDNER LLP			TIMORY, KABIR A	
SUITE 500			ART UNIT	PAPER NUMBER
3000 K STREET NW			2611	
WASHINGTON, DC 20007				

  

MAIL DATE	DELIVERY MODE
01/31/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/779,622	KITAKADO, JUN
	Examiner	Art Unit
	Kabir A. Timory	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 02 December 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-7, 10-14, 17-19 and 21-31 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7, 10-14, 17-19 and 21-31 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 February 2004 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date: _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant arguments regarding the rejection under 35 USC 102(b) as being anticipated by Ozaki et al. (JP Patent Number 09-205390) have been fully considered but they are not persuasive. The examiner thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

**Applicant's arguments:** "In the invention according to independent claims 1, 12 and 17, a correlation value between signals of a plurality of data streams received at a respective plurality of antennas is estimated and displayed to a user, so that the correlation value can be manually adjusted by the user. Contrary to the invention according to claims 1, 12 and 17, Ozaki relates to a space diversity antenna installation system in which a correlation value between antenna reception signals is calculated. Ozaki fails to disclose or suggest displaying a correlation value to a user, so as to enable the user to manually adjust the correlation value in an adaptive array radio communication apparatus".

**The examiner's response:** In paragraphs 0008 and 0009, Ozaki et al. discloses a means for calculating the correlation values and also he discloses a display section, space control section, which is shown in figure 1, blocks 12 and 10 respectively. In

paragraph 0009, Ozaki et al. clearly states, "antennas 1 and 2 are moved according to spacing data". This indicates that the location or antenna tilt is adjusted according to the correlation values and spacing data. Two or more antennas are used in wireless devices for space diversity and to combat multipath in the system. Furthermore, in paragraph 0010, Ozaki et al. discloses "a correlation value is calculated for every spacing by making antenna spacing into a parameter". Based on this statement, it is clear that the correlation values are calculated to adjust the antennas location or tilt. In paragraph 0009, Ozaki et al. also discloses a display section, which displays "report completion" which is interpreted to be the correlation values of the received signal. Moreover, Ozaki et al. discloses moving antennas according to spacing data which is interpreted to be manually adjust the correlation value in an adaptive array radio communication apparatus.

Applicants are remained that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. So the Examiner considers "displaying report" are "displaying correlation values and magnitude level" and "moving antennas according to spacing data" is "manually adjust the correlation value in an adaptive array radio communication apparatus" and also "space control section in figure 1" is "interpreted to automatically actuate said estimation unit and said display unit" within the broad meaning of the term. The Examiner is not limited to Applicant's definition, which is not specifically set fourth in the claims. In re Tanaka et al., 193 USPQ 139, (CCPA) 1977.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, an antenna driving unit as recited in claim 28 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claims 10, and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 10 and 11 are depending on the cancelled claim 8. The examiner is respectfully suggesting changing the dependency of claims 10 and 11 to a proper preceding claim or canceling the claims.

***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-7, 10-14, 17-19, 21, 22, 23, 24, 25, 26, 27, and 29-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of copending Application No. 10/528097. Although the conflicting claims are not identical, they are not patentably distinct from each other because all the claimed limitations recited in the present application are transparently found in the copending application 10/528097 with obvious wording variations.

For instance:

(1) In claim 1 of the present claimed invention and claim 1 of the **10/779622** application, the Applicant's claim:

An adaptive array radio communication apparatus having a plurality of antennas, comprising:

- an estimation unit configured to estimate a correlation value between signals of a plurality of streams received at respective said plurality of antennas,
- a display unit configured to display said estimated correlation value between said signals of said plurality of streams, and
- an antenna correlation adjustment unit configured to cause the correlation value between said signals of said plurality of streams to be altered manually by a user.

(2) In claim 1 of the present claimed invention and claim 1 of the **10/528097** application, the Applicant's claim:

An adaptive array wireless communication apparatus having a plurality of antennas (ANT#1, ANT#2), comprising:

- determining means (5) for determining reception levels of signals of a plurality of streams received by respective ones of said plurality of antennas;
- display means (6) for displaying said determined reception levels of signals of said plurality of streams; and
- reception level adjusting means manually operated by a user for adjusting the reception levels of signals of said plurality of streams.

Thus, in respect to the above discussions, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to use the teachings of claim 1 of 10/528097 application as a general teachings of a negative bar code to perform the same functions as claimed by the present application. The instant claims obviously encompass the claimed invention of 10/528097 application and differ only in terminology. To the extent that the instant claims are broaden and therefore generic to the claimed invention of 10/528097 application, in re Goodman 29 USPQ 2d 2010 CAFC 1993, states that a generic claim cannot be issued without a terminal disclaimer, if a species claim has been previously been claimed in a co-pending application.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1-7, 10-14, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozaki et al. (JP Patent Number 09-205390).**

**Regarding claim 1:**

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), comprising:

- an estimation unit configured to estimate a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9)
- a display unit configured to display said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009), and
- an antenna correlation adjustment unit (10 in figure 1) configured to cause the correlation value between said signals of said plurality of streams to be altered

manually by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

**Regarding claim 2:**

Ozaki further discloses:

- said display unit displays the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (paragraph 0009).

**Regarding claim 3:**

Ozaki further discloses:

- said display unit displays a magnitude level of the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying magnitude level of the correlation values) (paragraph 0009).

**Regarding claim 4:**

Ozaki further discloses:

- wherein said display unit can selectively display the correlation value between said signals of said plurality of streams and a magnitude level of said correlation value as a display content (12 in figure 1, paragraph 0009),
- said adaptive array radio communication apparatus further comprising display content designation unit configured to determine the display content by said display unit in accordance with designation by a user in advance (12 in figure 1, paragraph 0009).

**Regarding claim 5:**

Ozaki further discloses:

- wherein said display unit can selectively display the correlation value between said signals of said plurality of streams and a magnitude level of said correlation value as a display content (displaying report is interpreted to be displaying magnitude level of the correlation values) (12 in figure 1, abstract, paragraph 0009),
- said adaptive array radio communication apparatus further comprising a display content switch unit configured to sequentially switch the display content by said display unit periodically (12 in figure 1, paragraph 0009).

**Regarding claim 6:**

Ozaki further discloses:

- an actuation unit configured to automatically actuate said estimation unit and said display unit (space control section is interpreted to automatically actuate said estimation unit and said display unit) (10 in figure 112 in figure 1).

**Regarding claim 7:**

Ozaki further discloses:

- an actuation unit configured to actuate said estimation unit and said display unit in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

**Regarding claim 10:**

Ozaki further discloses:

- an actuation unit configured to automatically actuate said estimation unit and said antenna correlation adjustment unit (space control section in figure 1 is interpreted to automatically actuate said estimation unit and said display unit) (12 in figure 1).

**Regarding claim 11:**

Ozaki further discloses:

- an actuation unit configured to actuate said estimation unit and said antenna correlation adjustment unit in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

**Regarding claim 12:**

As shown in figure 1, Ozaki discloses an antenna correlation display method of an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), said method comprising the steps of:

- estimating a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9), and
- displaying said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009);
- receiving a user input for causing the estimated correlation value to be altered by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009); and

- readjusting the plurality of antennas (1, 2, and 10 in figure 1) based on the user-altered correlation value (moving antennas according to spacing data is interpreted to be user-altered correlation value) (paragraph 0009).

**Regarding claim 13:**

Ozaki further discloses

- said display step displays the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009).

**Regarding claim 14:**

Ozaki further discloses

- said display step displays a magnitude level of the correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying magnitude level of the correlation values) (12 in figure 1, paragraph 0009).

**Regarding claim 21:**

Ozaki further discloses wherein said display unit displays said estimated correlation value as a numeric value (correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said estimated correlation value on said display unit (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

**Regarding claim 23:**

Ozaki further discloses wherein said estimated correlation value is displayed as a numeric value correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said estimated correlation value that is being displayed (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user, and min values are interpreted to be the correlation value to be smaller) (paragraph 0009, paragraph 0010).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 27-30 are rejected under 35 U.S.C. 103(a) as being obvious over Ozaki et al.**

**Regarding claim 27:**

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus having a plurality of antennas, comprising:

- an estimation unit (8 in figure 1) configured to estimate a correlation value between signals of a plurality of streams received at respective said plurality of antennas (paragraph 9); and
- an antenna correlation adjustment unit (10 in figure 1) configured to alter the correlation value between said signals of said plurality of streams (paragraph 0009).

Ozaki et al. et al. discloses all of the subject matter as described above except for specifically teaching such that said estimated correlation value becomes smaller.

However, one of ordinary skill in the art would have clearly recognized that moving antennas according to spacing data can alter the correlation value between said signals of said plurality of streams such that said estimated correlation value becomes smaller (see paragraph 0009). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include a space control section as taught by Ozaki et al. in space diversity antenna installation method in order to alter the correlation value between said signals of said plurality of streams such that said estimated correlation value becomes smaller.

**Regarding claim 28:**

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus according to claim 27, wherein said antenna correlation adjustment unit comprises:

- an antenna driving unit (9 in figure 1) configured to modify an angle between a plurality of antennas (moving antennas according to spacing data is interpreted to be modify an angle between a plurality of antennas) (paragraph 0009); and

- a control unit (10 in figure 1) configured to control said antenna driving unit (paragraph 0009).

Ozaki et al. et al. discloses all of the subject matter as described above except for specifically teaching such that an angle between said plurality of antennas is modified to cause said correlation value to become lower than a predetermined threshold value.

However, one of ordinary skill in the art would have clearly recognized that moving antennas according to spacing data can modify the angle between plurality of antennas which can cause said correlation value to become lower than a predetermined threshold value (see paragraph 0009). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include a space control section as taught by Ozaki et al. in space diversity antenna installation method in order modify the angle between plurality of antennas which can cause said correlation value to become lower than a predetermined threshold value.

**Regarding claim 29:**

As shown in figure 1, Ozaki et al. discloses an antenna correlation adjustment method of an adaptive array radio communication apparatus having a plurality of antennas, said method comprising the steps of:

- estimating a correlation value between signals of a plurality of streams received at respective said plurality of antennas (1, 2, and 8 in figure 1, paragraph 0009); and
- altering the correlation value between said signals of said plurality of streams (10 in figure 1, paragraph 0009).

Ozaki et al. et al. discloses all of the subject matter as described above except for specifically teaching such that said estimated correlation value becomes smaller.

However, one of ordinary skill in the art would have clearly recognized that moving antennas according to spacing data can alter the correlation value between said signals of said plurality of streams such that said estimated correlation value becomes smaller (see paragraph 0009). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include a space control section as taught by Ozaki et al. in space diversity antenna installation method in order to alter the correlation value between said signals of said plurality of streams such that said estimated correlation value becomes smaller.

**Regarding claim 30:**

Ozaki et al. et al. discloses all of the subject matter as described above except for specifically teaching wherein said correlation value altering step further includes the step of modifying an angle between said plurality of antennas such that said correlation value becomes lower than a predetermined value smaller.

However, one of ordinary skill in the art would have clearly recognized that moving antennas according to spacing data can modify an angle between said plurality of antennas such that said correlation value becomes lower than a predetermined value smaller (see paragraph 0009). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include a space control section as taught by Ozaki et al. in space diversity antenna installation method in order to modify an

angle between said plurality of antennas such that said correlation value becomes lower than a predetermined value smaller.

**10. Claims 17-19, 25, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Langberg et al. (US Patent Number 5,852,630).**

**Regarding claims 17-19, 25, and 31:**

Ozaki et al. discloses all of the subject matter as described above claims except for a computer readable medium storing an antenna correlation display computer program product of an adaptive array radio communication apparatus having a plurality of antennas, the computer program product causing a computer to execute the steps of:

However, Langberg et al. teaches the antenna correlation adjustment method of a communication device with proceeding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method. One skilled in the art would have clearly recognized that the method of Ozaki et al., and Langberg et al would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability,

and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Langberg et al. in the Ozaki et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kabir A. Timory whose telephone number is 571-270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number:  
10/779,622  
Art Unit: 2611

Page 19

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kabir A. Timory  
January 25, 2008



SHUWANG LIU  
SUPERVISORY PATENT EXAMINER